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CONTRIBUTION

TO THE

DIAGNOSIS

OF

Cancerous Diathesis—Carcinosis.

Presby A. E. M. Purdy

BY

WM. B. NEFTEL, M.D.,

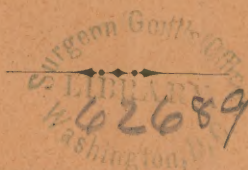
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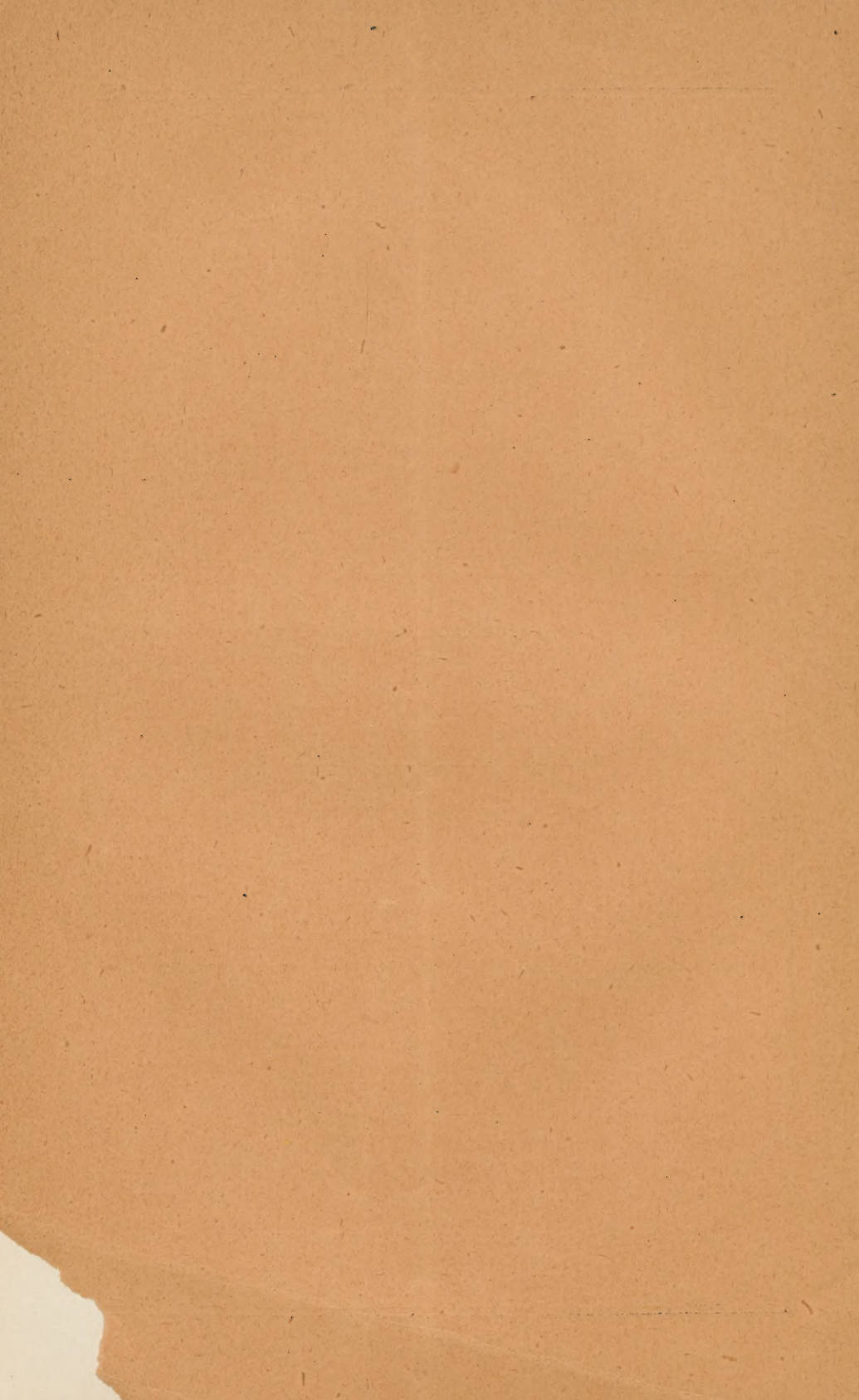


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II.

CONTRIBUTION TO THE

DIAGNOSIS OF CANCEROUS DIATHESIS (CARCINOSIS).

BY

WILLIAM B. NEFTEL, M.D.,

NEW YORK.

ONCOLOGY, the doctrine of morbid growths or tumors, is perhaps the most interesting and instructive branch of pathology. It reflects in a high degree the state of our scientific knowledge of the structure and development not only of the morbid, but also of the healthy tissues, and serves as a criterion of our practical ability to interfere with morbid processes, so as to modify them in a manner favorable to health and life.

Having observed malignant tumors during a considerable number of years (since 1852), in hospitals and private practice, and having studied their histological structure and mode of development in the pathological institutes of Foerster and Virchow, I finally came to the conclusion that malignant tumors, for instance carcinoma, are of a local origin. In accordance with this theory, we find that the organs which are primarily affected by carcinoma are those exposed to constant mechanical and chemical irritations, like the lips, tongue, œsophagus, stomach, rectum, breast, testicle, uterus, etc. In exceptional cases a primary carcinoma occurs in internal organs, but even then a careful investigation shows that the carcinoma has been preceded by some local irritative process. I have notes of a number of cases in which the most malignant kinds of carcinoma developed themselves in perfectly healthy persons without the least hereditary disposition, in an organ that had previously received a mechanical injury. This can often be ascertained in investigating the etiology of carcinoma in the female breast.

The primary carcinoma may remain localized for a shorter or longer period, according to the species of carcinoma, and its intimate connection with other structures, etc. But afterward it invariably becomes generalized through the lymphatics and blood-vessels, thus affecting various and distant organs.

I do not mean to deny the existence of a hereditary disposition to malignant tumors, though I think it has been greatly exaggerated. This disposition does not consist in a congenital acquisition of some morbid germs, but in the inheritance of a faulty arrangement or structure of some tissues and organs which necessarily offer less resistance to morbid causes, and are therefore more liable to be affected by them.*

The theory of a local origin of carcinoma seems to be easily refuted by the clinical history of this neoplasm. Indeed, were it of a local origin, it ought to be always cured by extirpation of the tumor. Daily experience, however, teaches us just the reverse, and the rule is, that such an operation is followed by a relapse and by the generalization of the disease. The explanation of this discrepancy between theory and practice is very simple. On making a microscopic examination of the surrounding so-called healthy tissues after extirpation of malignant tumors, we invariably find them undergoing the cancerous degeneration. Consequently there is no real relapse, but an uninterrupted growth of the neoplasm. The only difference is, that while before the operation the morbid process was slow and chronic, it assumes, after the operation, a more acute course, in consequence of which the fatal termination is decidedly accelerated. It seems as if, by the active interference, the remaining cancer cells have been stimulated to an increased proliferating activity.

My experiments have convinced me that there is but one means by which this difficulty can be obviated. This is the electrolytic treatment, employed according to certain methods, the description of which I give in another place. I found that as long as carcinoma remains in the stage of a local affection, it can be cured by electrolysis. But when deposits already exist in the internal organs, the disease is incurable; though even then much can be done by electrolysis to relieve pain and improve the general condition of the patient.

From the foregoing it follows, that the prognosis in carcinoma depends upon the circumstance whether the affection is still local, or has already become generalized. In the first case only are we now enabled to make a favorable prognosis.

Under these circumstances the diagnosis of cancerous deposits in internal organs acquires such a high practical importance as could have never been expected before. Formerly, when carcinoma was considered of constitutional origin, such a diagnosis had merely a theoretical interest, and the existence of internal deposits was judged mainly by the external appearance of the patients, by the so-called

* Virchow, Die krankhaften Geschwülste. Berlin, 1863; Bd. I.; p. 63.

cancerous cachexia. This is not entirely correct. The majority of patients who were under my observation did not at all exhibit a cachectic appearance during the earlier stages of the disease; on the contrary, they presented a healthy and vigorous appearance. The cachectic phenomena developed themselves in the latest stage of the disease, from the moral and physical suffering of the patient, from the extensive suppuration and destruction of tissues, and especially from absorption of the products of decomposition of the cancer-cells, which, like other excrementitious matter, act deleteriously upon the system.

In regard to the diagnosis of cancerous deposits in internal organs, we must bear in mind that those organs which are usually affected by a primary carcinoma are scarcely ever the seat of secondary cancerous deposits. On the other hand, the organs that are generally exempt from the development of a primary carcinoma are almost always affected secondarily. Thus we never meet with a primary cancer of the lymphatic glands, though they almost always become secondarily affected. The same is the case with the lungs, kidneys, liver, &c. It would seem, therefore, quite easy to find an affection of the neighboring lymphatic glands in order to enable us to make the diagnosis of a cancerous diathesis. For example, in carcinoma of the breast it would seem easy to discover the affection of the axillary glands, and thus arrive at a correct diagnosis of constitutional carcinosis. This, however, is not always the case. Pathological histology teaches that lymphatic glands may undergo the cancerous degeneration to a considerable extent, and yet not present during life any change with regard to their size and resistance. At the same time large cancerous deposits may exist in the liver and elsewhere. Again, the neighboring glands may be found affected, while all the other internal organs would be free from secondary deposits, in which case the prognosis, though doubtful, is not absolutely bad, as in this stage the disease may yet be arrested. We must therefore examine the different internal organs that are known to be the frequent seat of secondary cancerous deposits. If the physical examination of the organs of the chest, the chemical and microscopical examination of the urine, reveal an organic affection of the lungs or of the kidneys in a person affected with carcinoma, we can conclude with a great deal of probability that the generalization of the disease has already taken place. But the most pathognomonic sign of internal cancerous deposits can be derived from the affection of the liver—the most frequent seat of secondary deposits. On examining the urine in carcinoma of the liver we find it containing a large amount of indican. This coloring matter is occasionally found also in typhus, cholera, and other diseased conditions, but its presence in large quantities in per-

sons affected with malignant tumors I consider as pathognomonic of carcinoma of the liver, and consequently of the generalization of the disease.

The easiest way to discover indican is by the method of Jaffé.* The urine is mixed with an equal volume of pure hydrochloric acid, to which are added a few drops of a concentrated solution of chloride of lime. The liquid at once assumes a blue color, and forms, after a while, a blue sediment of indigo. This sediment can be filtered, but it contains, besides indigo-blue, other coloring substances and indigo-red, which have to be eliminated in order to make an exact quantitative analysis of the former. Some of these substances are dissolved in boiling water, others in ammonia, and the indigo-red in alcohol. If the urine contains a very small quantity of indican it must be concentrated before making the test. For this purpose the urine has to be evaporated in the water-bath to the consistency of syrup (to avoid decomposition it should be kept alkaline during the evaporation), treated with strong alcohol, filtered after 24 hours' standing, and finally freed from the alcohol by distillation. The remainder is dissolved in water, precipitated with chloride of iron, filtered and the iron-salt removed by boiling ammonia, then again filtered and evaporated to one-fourth of the volume of the urine. This filtrate will now give the reaction of indican as above described.

To illustrate the importance of discovering indican in the urine for diagnostic purposes, I shall mention here a few cases from my practice.

Mr. E. H., an elderly gentleman, suffered for years from distressing symptoms of catarrh of the stomach. He vomited frequently, especially after his meals, complained of a great deal of pain in the epigastric region, and of constipation of the bowels. He presented an appearance in the highest degree anæmic and cachectic. He felt very prostrated and exhausted from want of nourishment, as the food he took was every time rejected. He was treated by most experienced and eminent physicians, all of whom recognized the symptoms of carcinoma of the stomach, but could not admit of its existence, finding no tumor in the abdomen. March 13th, 1870, I saw the patient in consultation with Dr. G. A. Peters, and, like others, not having discovered the presence of a tumor, I was unable to make a positive diagnosis. Subsequently, on examining the urine of the patient I found indican, and diagnosticated the affection of the liver. The post-mortem revealed a cancerous ulcer of the stomach and large secondary cancerous deposits in the liver.

M. W., aged 54, consulted me in regard to an abdominal tumor. His general health was very good, and he only complained of a heaviness in the abdomen, which did not amount to a real pain. By palpation I could discover several tumors in the liver, two of which were large, apparently of a globular shape, very elastic and

* Jaffé, Ueber den Nachweis und die quantitative Bestimmung des Indicans im Harn. *Pflüger's Archiv*, 1870, III., p. 448.

fluctuating, and I suspected the presence of *ecchynococci*. In consultation with Drs. J. C. Nott and Stephen Rogers, March 20th, 1871, I inserted into the tumors a hypodermic syringe, in order to draw some of the characteristic contents of the supposed hydatid cysts before resorting to the electrolytic treatment, which I consider very efficient and not at all dangerous in hydatids of the liver. To our surprise, nothing but pure blood was obtained. Not the least reaction followed this exploration. I examined subsequently the urine, which I found contained indican, and I therefore diagnosticated carcinoma of the liver. I was told afterwards that his tumors increased in size, that he became cachectic, and finally died of general carcinosis.

Mrs. C. had her left scirrhus mammary gland amputated last year. The wound healed, with the exception of the upper portion, which assumed the appearance of a cancerous ulceration. This latter continues to enlarge in all directions, involving all the neighboring tissues, and is accompanied with a great deal of fetid suppuration and pain. I saw the patient in consultation with Dr. E. Herrick, of this city, Jan. 11th, 1873. The lady seems to be the picture of health, and except the ulcer in the left mammary region, no cancerous deposits can be discovered anywhere; even the axillary glands seem not affected. Nevertheless, I found a large quantity of indican in the urine, and concluded that there must be cancerous deposits in the liver. I accordingly made a very unfavorable prognosis, though there was apparently no evidence of the affection of any organ, and the general health of the patient seemed in an excellent condition.

The physiological and pathological significance of indican in the animal economy is as yet undetermined.

Kühne's researches show that indol is one of the products of pancreatic digestion. From Jaffé's* experiments we know that after hypodermic injections of indol, large quantities of indican invariably appear in the urine.

To explain the presence of indican in the urine of patients affected with carcinoma of the liver, we have either to admit of some obstacle to the elimination of the indol with the excrements, or perhaps of an increased production and absorption of indol.

* Ueber den Ursprung des Indicans im Harne. *Centralblatt für die medic. Wissensch.* 1872 No. 1.

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